

3.6.6 Changed Circumstances and Remedial Measures

USFWS and NMFS regulations define changed circumstances as “changes in circumstances affecting a species or geographic area covered by a conservation plan that can reasonably be anticipated by plan developers and the [USFWS and NMFS] and that can be planned for...” (50 C.F.R. §17.3; 50 C.F.R. §222.102) and the NCCP Act defines changed circumstances as “...reasonably foreseeable circumstances that could affect a covered species or geographic area covered by the plan.” (Fish and Game Code §2805(c)). The BDCP Implementing Entity would implement remedial measures that address changed circumstances in the event they should occur. Changed circumstances would be deemed to occur through the process described in Section 7.X of the Chapter 7, *Implementation Structure*. Changed circumstances and remedial measures that would be implemented by the Implementing Entity in the event of changed circumstances are described in Table 3.X.

Table 3.X. Changed Circumstances and Remedial Measures

[Note: This table provides samples of the beginnings of the list of BDCP changed circumstances and remedial measures to address the change. Additional changed circumstances and remedial measures will be added.]

Changed Circumstance	Remedial Measure
Water operations infrastructure failure precludes implementing operations within the adaptive range of values identified for operations conservation measures.	<p>The BDCP Implementing Entity would identify and implement repairs to the affected infrastructure as soon as feasible. During the repair period, the BDCP Implementing Entity and Permit Applicants in coordination with the Fishery Agencies would identify appropriate adjustments to water operations to provide ecological benefits for covered fish species as close to the levels that would have been achieved before the infrastructure failure through the adaptive management process.</p> <p>If the failed infrastructure cannot be repaired, the BDCP Implementing Entity and Permit Applicants would coordinate with the Fishery Agencies to identify and implement effective remedial measures.</p>
Restored physical habitat types (i.e., tidal marsh, riparian, inundated floodplain, and channel margin) do not provide the expected level of benefits for one or more covered species.	<p>The BDCP Implementing Entity will use conservation measure monitoring results and conduct research if needed to determine if the benefits provided by the restored habitat type can be increased by changing design, implementation, and management of the restored habitat type. If effective design, implementation, and management solutions are identified, the BDCP Implementing Entity would apply the improvements to all subsequently designed restorations of the habitat type.</p> <p>If the desired level of benefits cannot be achieved by adjusting design, implementation, and management of the habitat type, the BDCP Implementing Entity will, in coordination with the Fishery Agencies, identify effective alternative conservation measures to provide comparable levels of benefits for the affected covered species. Remaining BDCP funds for restoration of the habitat type would be deobligated and used to fund implementation of the alternative conservation measures.</p>

HANDOUT #1

Table 3.X. Changed Circumstances and Remedial Measures

[Note: This table provides samples of the beginnings of the list of BDCP changed circumstances and remedial measures to address the change. Additional changed circumstances and remedial measures will be added.]

Changed Circumstance	Remedial Measure
Sufficient lands cannot be secured by the BDCP Implementing Entity within a Restoration Opportunity Area to implement habitat restoration conservation measures.	<p>The BDCP Implementing Entity in coordination with the Fishery Agencies through the adaptive management process will identify suitable locations and restore the habitat elsewhere in the Planning Area that will provide similar types and levels of covered species benefits intended by the affected conservation measures. If the habitat restoration cannot be located elsewhere in the Planning Area, the Implementing Entity, in coordination with the Fishery Agencies will:</p> <ul style="list-style-type: none"> ▪ implement habitat restoration outside of the Planning Area in locations that would benefit the covered species or ▪ implement alternative conservation measures that provide equivalent levels of covered species benefits.
Invasion and establishment of new non-native species diminishes covered species benefits provided by restored habitats.	<p>The BDCP Implementing Entity, in coordination with the Fishery Agencies will identify and implement effective measures to control effects of the invasive species on habitat and other functions provided by the restored habitats (e.g., control of non-native plant species in restored tidal marsh that affect food web functions). If effective methods to control effects of the invasive species are not available, the BDCP Implementing Entity in coordination with the Fishery Agencies will identify alternate design, implementation, and management approaches to implementing future habitat restorations that will avoid or minimize potential adverse effects of the invasive species on covered species benefits provided by future restorations. If restoration design, implementation, and management cannot be adjusted</p>
BDCP levees constructed to restore tidal marsh habitats fail and result in reducing the level of covered species and ecosystem benefits associated with the affected restored tidal marshes.	<p>The BDCP Implementing Entity will repair the failed levee and undertake actions to restore degraded or lost habitat. If the habitat cannot be restored, the BDCP Implementing Entity, in coordination with the Fishery Agencies will restore comparable habitat elsewhere in the Planning Area to replace the lost or degraded habitat functions resulting from the levee failure.</p>

HANDOUT #1

Table 3.X. Changed Circumstances and Remedial Measures

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Changed Circumstance	Remedial Measure
Limited Delta levee failures resulting from floods, seismic events, or other causes inhibit the ability to implement physical habitat conservation measures or reduce the covered species and ecosystem benefits that would be provided by the conservation measures.	<p>The BDCP Implementing Entity in coordination with the Fishery Agencies through the adaptive management process will, depending on specific circumstances of the event, implement one of the following actions to replace the intended outcomes of restoration actions precluded by levee failures:</p> <ul style="list-style-type: none"> Repair and maintain the failed levee(s) such that the habitat restoration conservation measures can be implemented as described in the Conservation Strategy or Restore the habitat elsewhere in the Planning Area in locations that will provide similar types and levels of covered species benefits intended by the affected conservation measures. If the habitat restoration cannot be located elsewhere in the Planning Area, the Implementing Entity, in coordination with the Fishery Agencies will implement habitat restoration outside of the Planning Area in locations that would benefit the covered species or implement an alternative conservation measure that provides equivalent levels of covered species benefits.
Multiple Delta levee failures resulting from floods, seismic events, or other causes substantially alter aquatic conditions such that conservation measures, including water operations, cannot be implemented and/or the covered species habitat benefits provided by conservation measures are substantially reduced as a result of altered aquatic ecosystem conditions or changes in the behavior or distribution of covered fish species.	The BDCP Implementing Entity and Permit Applicants will coordinate with the Fishery Agencies to identify and implement effective remedial measures.
Other stressors contaminant reduction, other water quality, and non-native invasive species conservation measures do not provide the expected level of benefits for one or more covered species.	<p>The BDCP Implementing Entity will use conservation measure monitoring results and conduct investigations if needed to determine if the benefits provided by the conservation measures can be increased by changing implementation methods. If effective implementation solutions are identified, the BDCP Implementing Entity would apply the revised implementation methods to all subsequent implementation of the conservation measure.</p> <p>If the desired level of benefits cannot be achieved by adjusting implementation methods, the BDCP Implementing Entity will, in coordination with the Fishery Agencies, identify effective alternative conservation measures to provide comparable levels of benefits for the affected covered species. Remaining BDCP funds for the conservation measure would be deobligated and used to fund implementation of the alternative conservation measures.</p>

Table 3.X. Changed Circumstances and Remedial Measures

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Changed Circumstance	Remedial Measure
Entities under contract or through agreements with the BDCP Implementing charged with implementing conservation measures fail to effectively implement the conservation measures.	<p>The BDCP Implementing Entity will consult with the entity to improve the entity's implementation performance. If implementation cannot be improved, the BDCP Implementing Entity will implement one of the following actions.</p> <ol style="list-style-type: none"> 1. Contract or enter into agreements with another entity qualified to implement the conservation measure(s). 2. The BDCP Implementing Entity implements the conservation measure(s). 3. In coordination with the Fishery Agencies and the Permit Applicants, the BDCP Implementing Entity will identify effective alternative conservation measures to provide comparable levels of benefits for the affected covered species. Remaining BDCP funds for the conservation measure(s) would be deobligated and used to fund implementation of the alternative conservation measures.
Climate change effects on sea level rise and watershed hydrology are greater than climate changed assumed in formulation of conservation measures such that conservation measures cannot be implemented or covered species benefits provided by implemented conservation measures are substantially reduced (e.g., water operations cannot be implemented within the adaptive range of operations).	The BDCP Implementing Entity and Permit Applicants will coordinate with the Fishery Agencies to identify and implement effective remedial measures.
A toxic or hazardous substance spill event occurs within BDCP restored, enhanced, or protected habitat areas.	The BDCP Implementing Entity would identify and undertake appropriate management measures in coordination with the Fishery Agencies that feasibly and effectively restore the affected ecological functions of BDCP habitat areas. If the affected habitat areas cannot be feasibly and effectively restored, the BDCP Implementing Entity in coordination with the Fishery Agencies would identify and implement measures to contain the ecological effects of the spill and replace the habitat elsewhere or would implement alternative conservation measures (e.g., expanded or additional contaminant reduction measures) that provide equivalent ecological benefits for the affected covered species through the adaptive management process.

Table 3.X. Changed Circumstances and Remedial Measures

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Changed Circumstance	Remedial Measure
Implementation of one or more conservation measures must be discontinued because they result in inadvertent non-compliance with state or federal environmental laws or regulations (e.g., water quality standards)	<p>The Implementing Entity in coordination with the Fishery Agencies would implement one or more of the following actions through the adaptive management process:</p> <ul style="list-style-type: none"> ■ modify implementation of the conservation measures to ensure compliance with the law or regulation; ■ identify and implement alternative conservation measures (e.g., expanded or additional contaminant reduction measures) that provide equivalent ecological benefits for the affected covered species; and ■ secure exemptions to or modifications of the law or regulation to allow continued implementation of the conservation measure(s).
Changed ocean conditions preclude achieving biological goals and objectives for covered anadromous fish species	Effects of changed ocean conditions on covered species are not the responsibility or within the scope of BDCP. The BDCP Implementing Entity in coordination with the Permit Applicants and Fishery Agencies, however, will identify and implement opportunities, if consistent with BDCP permits, for adjusting BDCP implementation through the BDCP adaptive management process to address the changed conservation needs of affected covered species caused by changed ocean conditions.
Future listing of a non-listed covered species.	Consistent with 63 FR 35 (February 23, 1998), USFWS and NMFS would automatically authorize take of newly listed covered species within their respective jurisdictions. Consistent with Fish and Game Code §2805(c) and §2835, DFG would automatically authorize take of newly listed covered species.